

RTO-West Development Process
Glossary of Terms
7/18/00

These definitions are intended to make arcane energy concepts understandable to the layperson and are not expected to satisfy attorneys or engineers. The glossary will be updated at irregular interval in response to input from readers. If you would like more information about a concept, would like to request that term be included or have any comments to make about the glossary, call Mike Hansen at 503-230-4328 or e-mail at mshansen@bpa.gov.

Access Charge is a fee levied for access to a utility's transmission or distribution system. It is a charge for the right to send electricity over another's wires and is not typically tied to the actual amount of power shipped.

Ancillary Services include the provision of reactive power, frequency control, and load following.

ATNI is the Affiliated Tribes of Northwest Indians.

ATC is Available Transmission Capacity.

Average Megawatt is the amount of energy consumed by a one Megawatt load served 24 hours a day for one year.

Brokers match wholesale power buyers to sellers for a fee. They are subject to Federal Energy Regulatory Commission jurisdiction.

Bulk Power Transfers are high voltage transfer of power between utilities who provide either transmission or distribution or both.

CBO is the Congressional Budget Office.

Capacity is the maximum generation output of a facility. It is usually measured in megawatts.

Co-generation means power generated at a manufacturing plant as a byproduct of producing steam.

Comparability Tariffs In a restructured wholesale electrical market, according to FERC Order 888, there should be non-discriminatory, open access charges or tariffs for use of the transmission network by all generators of wholesale electricity on a comparable basis. These tariffs provide that the same prices, terms and conditions would apply to both the utility for its own transactions and to other generators.

Congestion refers to transmission paths that are constrained, which means limit power transactions because of insufficient capacity. Congestion can be relieved by increasing generation or by reducing load.

Conservation, when applied to BPA, means an increase in efficiency of electric power consumption. In general, it means a reduction in power consumption.

Consumer-Owned Cooperatives are cooperatives formed under state or federal law to provide electric power to members.

Control Area is a geographical area in which a utility is responsible for balancing generation and load. The Northwest has many control areas. One goal of the RTO is to have one control area, which could reduce transmission costs by reducing rate Pancaking and increase reliability.

Curtailement is a reduction in transmission service in response to a transmission constraint.

Cutplanes are reference points on a set of transmission lines that define capacity restrictions under certain operating conditions or when facilities are out of service. They are identified with transmission constraints.

Critical Water is a planning concept based on the lowest flows in the history of the Columbia River. It defines the least amount of Firm power that can be assumed to be produced by the Federal Columbia River Power System. It is a function of historical water flows, the shape of demand and reservoir storage capacity.

Demand means the amount of power consumers require at a particular time. Demand is synonymous with Load. It is also the amount of power that flows over a transmission line. System Demand is measured in megawatts.

Demand Management means reducing demand for electric power or shifting the demand to different times to capture cost savings. For example, a manufacturing plant may operate at night to reduce power costs. The plant's owner may also agree to have the plant's power interrupted if needed to serve peak demand.

Desert Southwest means Arizona, New Mexico, Utah, Nevada, and Western Texas.

Desert Star is a proposed Independent System Operator in the desert Southwest.

Direct Access is the ability of a retail customer to purchase commodity electricity directly from the wholesale market rather than through a local distribution utility.

Direct Assignment of Facilities are facilities that are constructed for an individual utility and costs for that facility are paid for by the utility for which the facility is directly assigned.

Dispatch The physical inclusion of a generator's output onto the transmission grid by an authorized scheduling utility.

Distributed Generation is small-scale generation that is distributed throughout a utility's system. Residential-size fuels cells and microturbines powered by natural gas or other commonly available fuels are examples. While expensive today, these resources are becoming more and more competitive.

Distribution refers to local facilities used to deliver power at low voltages to consumers within a utility's service area. Distribution is distinguishable from transmission, which refers to the transfer of large quantities of electric power at high voltages between utilities or regions.

Disco is a Distribution Utility.

DSIs are industries, primarily aluminum smelters, that buy great quantities of electricity directly from BPA — Direct service industries.

EA is an environmental assessment of the impact of an action to be taken by a federal agency. It is a less demanding assessment than an EIS. Both are requirements of NEPA.

EIS means environmental impact statement, which is a paper stating the impact on the environment of an action to be taken by a federal agency. EISs are required by NEPA.

Export Tariffs are charges placed on any transactions where power is exiting the system.

FCRPS means the Federal Columbia River Power System. This is formal name for the federal system of hydroelectric projects operated by the U.S. Army Corps of Engineers and the Bureau of Reclamation, the power acquired by BPA from other suppliers by contract and transmission facilities operated by BPA.

FCRTS is the Federal Columbia River Transmission System, which is the transmission facilities owned and operated by BPA.

FERC is the Federal Energy Regulatory Commission. It has regulatory power over investor-owned utilities and is the driving force behind energy deregulation and the formation of regional transmission organizations.

FERC Order 2000 is the order requiring investor-owned utilities to create regional transmission organizations.

FERC Order 888 requires jurisdictional utilities (those under FERC regulation to separate their power marketing operations from their transmission operations.

Filing Utilities (See Jurisdictional Utilities) are the utilities regulated by the Federal Energy Regulatory Commission that are jointly submitting a filing that defines the RTO.

Firm Power means power that can be produced from a hydrosystem under adverse water conditions. The amount of firm power a hydro system can produce is determined using Critical Water assumptions.

Firm Transmission means transmission service that may not be interrupted for any reason except during an emergency when continued delivery of power is not possible.

Fuel Switching means switching from one fuel, such as hydropower or coal, to another, such as natural gas.

GE MAPS was used to model the dispatch (fuel cost) savings resulting from elimination of pancaked rates and schedule flow limits within IndeGO.

Genco (Generation Company) is a company that generates power but does not own any transmission.

General Transfer Agreement is an agreement between BPA and another utility that is also a control area operator and has a BPA customer within that utilities control area.

Green Power is not a legally definable term but is usually used to mean power produced from a renewable resource such as wind, solar, geothermal, biomass or small hydro. Most of BPA's hydroelectric power is not considered green because salmon are injured in passing federal projects. BPA sells a power product, mostly wind generated, that has been endorsed as environmentally preferred power by an independent group of environmental organizations.

Grid is a network of transmission lines and the associated substations and other equipment required to move power. The BPA Grid consists of about 15,000 circuit miles of transmission lines.

High Voltage Lines are used to transmit power between utilities. The definition of “high” varies, but it is opposed to “low” voltage lines that deliver power to homes and most businesses.

IGO (Independent Grid Operator) is one form of a regional transmission organization that would be limited to operating the Grid rather than owning and operating the regional transmission system.

IndeGo was the name of a proposed Independent Grid Operator for the West Coast. It pre-dates the RTO-West proposal and many of the study papers from IndeGo are being used by the RTO-West study groups.

Interstate Compacts are authorized by the U.S. Constitution and are sometimes used to address interstate problems such as the regulation of shared water resources.

Intertie usually refers to very high voltage lines that carry electric power large distances. BPA has interties, for example, that connect FCRPS to Canada and the FCRPS to California.

IOUs are investor-owned, or publicly traded, utilities. IOUs are jurisdictional utilities.

ISA is an Independent System Administrator.

ISO means Independent System Operator, a form of RTO that manages transmission systems, but does not own the transmission assets.

ITC is an Independent Transmission Company.

Jurisdictional Utilities are utilities and other entities subject to FERC regulation pursuant to the Federal Power Act. These are investor-owned electric utilities, marketers, and brokers. These do not include federal agencies such as BPA, publicly owned utilities or consumer-owned cooperatives. Legislation has been introduced in Congress to subject BPA to FERC jurisdiction.

KEMA is the contractor who is managing the RTO-West development process.

Kilowatt (KW) is a unit to measure the rate at which electric power is being consumed. A kilowatt is the amount of power needed to light ten 100 watt electric light bulbs (1000 watts). It is also a unit used to measure transmission capacity that is sufficiently large to permit, in this case, 1000 watts to flow to the 1000-watt lighting load. One needs 1000 watts of capacity to turn on all ten 100 watt bulbs at the same time, even for an instant.

Kilowatt-hour (KWHr) is a unit that measures the amount of energy consumed in doing work, such as lighting a room at night. Ten 100 watt electric light bulbs will consume 1000 kilowatt-hours of energy each hour. The amount of energy consumed to perform work, such as lighting a room, correlates to the amount of fuel consumed in the form of falling water, nuclear decay, burning coal or burning natural gas, necessary to do that work, less transmission losses.

Load means the amount of power demanded by consumers. It is synonymous with Demand.

Load Following generally means generation responding to changes in load. When everyone gets up in the morning and turns on their toasters, load surges and generation must follow.

Load Shedding means dropping a load. This is usually an agreement arranged ahead of time to allow the transmission system to remain functional by dropping certain loads to keep others.

Market-based Price is the price of power on the open market. [contrast with cost-base? and make an entry for cost-based?]

Megawatt (MW) means 1000 Kilowatts.

Megawatt hour (MWhr) means 1000 Kilowatt-hours.

Megawatt-year and **Megawatt-month** are units to measure and price transmission services. A Megawatt-year is one megawatt of transmission capacity made available for one year. Similarly, a megawatt-month is one megawatt of transmission capacity made available for one month.

Municipal Corporations are corporations created by cities to conduct a business such as supplying power to its residents.

Marketers, unlike Brokers, take title to power in anticipation of selling it at a higher price to a buyer. Marketers are subject to FERC regulation.

NEPA is the National Environmental Policy Act. The 1969 act requires that federally funded projects must be evaluated to see what their impact will be on the environment.

Net Billing Is: 1) In general, offsetting payments due to one party against payments due the other party; 2) A method used by BPA to acquire its preference customers' entitlement to shares of project capability for (power output from) Trojan and the Washington Public Power Supply System Projects 1, 2, and 3. Accomplished by crediting the preference customers' costs in those projects against power sales revenues due BPA.

Nitrogen Supersaturation occurs when large quantities of water are spilled at dams, which concentrates nitrogen dissolved in the water. The high levels of nitrogen can harm smolts.

Nonfirm Power is electric power a hydro system can produce beyond Firm Power. Basically, it is the extra power the system can produce in a time of lots of rain and snow.

Nonfirm Transmission is transmission service that may be interrupted in favor of Firm Transmission schedules or for other reasons.

Nonprofit Corporation is organized under state law, has no stockholders and would not pay profits. It would be led by a board of directors or trustees chosen by the Corporation's members. All financing would be with debt.

Northwest or **Pacific Northwest**, for energy purposes, usually means Oregon, Washington, Idaho and Montana west of the continental divide as well as areas within 75 air miles of these boundaries, excluding Canada. Thus, it includes small portions of

Wyoming, Nevada, California and Utah. For the purposes of this paper, however, Northwest or Pacific Northwest means all of Oregon, Washington, Idaho, Montana, Nevada and Utah and small portions of Wyoming and California. Exhibit I-6.

OASIS is the Open-Access Same-time Information System. FERC requires that each transmission provider use these Internet-based information systems to keep all purchasers of transmission services equally informed of transmission availability and to make space equally available to all users.

OATT Open Access Transmission Tariff.

Obligation to Serve In exchange for the regulated monopoly status of a utility for a designated service territory with the opportunity to earn an adequate rate of return, comes the obligation to provide electrical service to all customers who seek that service at fair and reasonable prices. This has been known as the "regulatory compact" and also includes the requirement to provide a substantial operating reserve capacity in the electrical system.

Operating Agreement means an agreement between an RTO and a utility whereby the utility assigns control over the utility's transmission system in exchange for the RTO agreeing to make payment to the utility to cover the utility's transmission system costs.

Open Access is the same as direct access which is the ability of a retail customer to purchase commodity electricity directly from the wholesale market rather than through a local distribution utility.

PMAs are federal power marketing administrations in the Department of Energy that sell wholesale power generated at federal facilities. BPA is one four PMAs. The others are Southeastern Power Administration, Southwestern power Administration and Western Area Power Administration.

Pancaking refers to the way transmission rates pile up as electricity moves across utility control areas [another term to add]. One of the goals of an RTO is to have one control area so costs don't mount up as electricity is moved from supplier to user.

PMDAM is a model that simulates least cost resources and contract dispatch on an hourly basis, maintenance scheduling and generation expansion.

Point of Delivery is the physical point of connection between the transmission provider and a utility. Power is metered here to determine the cost of the transmission service.

Point to Point Transmission service from one discrete point to another discrete point.

PPC is the Public Power Council which represents and advocates the common legal and technical interests of the Northwest's consumer-owned utilities.

Publicly Owned Utilities means publicly-owned utility systems such as municipal utilities (Eugene Water and Electric Board, for example). Another form of publicly owned utility is called a people's utility district in Oregon (Emerald P.U.D., for example) and a public utility district in Washington (Clark County P.U.D., for example).

Reactive Power The out-of-phase component of the total voltamperes in an electric circuit, usually expressed in var (voltamperes reactive). It represents the power involved in the electric fields developed when transmitting alternating-current power (the alternating exchange of stored inductive and capacitive energies in a circuit).

Regionalization is a term used to describe efforts aimed at preserving the benefits Northwest resources for the people of that region.

Reliability means the ability to meet demand without interruption under adverse conditions. If power flows exceed transmission capacity anywhere along the path from generation to load even for an instant, the system will go down. Transmission systems are designed to withstand severe conditions.

Restructuring The reconfiguration of the vertically integrated electric utility. Restructuring usually refers to separation of the various utility functions (such as power and transmission) into separate entities.

Retail Competition is a system under which more than one electricity provider can sell to retail customers, and retail customers are allowed to buy from more than one provider. See also Direct Access.

Revenue Requirement is 1) The amount of revenue a utility must take in to cover the sum of its estimated operation and maintenance expenses, and debt service and coverage. 2) At BPA, the lowest amount of revenues necessary to recover the projected annual expenses of the Federal Columbia River Power System and the planned net revenues that ensure coverage of planned amortization payments and meet financial objectives.

ROD means record of decision. It's a document that tells the public of the decision a federal agency has made and the grounds for the decision.

ROR Rate of return.

RRG is the Regional Representative Group, made up of Northwest stakeholders, oversees the development of RTO-West and helps direct the activities of the RTO-West development process workgroups.

RTG (Regional Transmission Group) A large number of utilities, independent power producers and state agencies join to provide more equitable and easier access to power lines in an area covering many states.

Southwest or Pacific Southwest means, for our purposes, California, Arizona and New Mexico.

Tariff A document, approved by the responsible regulatory agency, listing the terms and conditions, including a schedule of prices, under which utility services will be provided.

Transco is yet another kind of regional transmission organization. A transco owns and operates the regional transmission system.

Transmission refers to the transfer of large quantities of electric power at high voltages between utilities or regions, such as between The Dallas, Oregon, and Los Angeles. Transmission contrasts with “distribution,” which refers to local facilities used to deliver power at low voltages to consumers within a utility’s service area.

Transmission Control Agreement is an agreement between a participating transmission owner of transmission facilities by which such owner transfers to the new RTO operational control of such transmission facilities and transmission contract rights within the new RTO control area.

Wheeling has loosely meant one utility transmitting power generated by another utility to a customer of the generating utility.

Wholesale Competition A system in which a distributor of power would have the option to buy its power from a variety of power producers, and the power producers would be able to compete to sell their power to a variety of distribution companies.

Wholesale Power Market The purchase and sale of electricity from generators to resellers (who sell to retail customers) along with the ancillary services needed to maintain reliability and power quality at the transmission level.

WSCC — Western Systems Coordinating Council — is a group of utilities banded together to promote reliability by coordinating the power supply and transmission in the West.